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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,286	12/12/2003	Davide Patti	854063.741	9943

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EXAMINER
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LOKE, STEVEN HO YIN

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/735,286

Applicant(s)

PATTI, DAVIDE

Examiner

Steven Loke

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-17, 19, 20 and 22-26 is/are rejected.
- 7) ☒ Claim(s) 12, 18 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

1. Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The emitter region comprising an internal conductive region and an external conductive region in claim 1. The claimed subject matters of claims 23 and 25.
3. Claims 15, 21 and 25 are objected to because of the following informalities: Claim 15, line 7, the phrase "first and second transistor" is unclear whether it is being referred to "first and second transistors". Claim 21, lines 1-2, the phrase "inner and outer conductive region" is unclear whether it is being referred to "inner and outer conductive regions". Claim 25, line 2, the phrase "the base" has no antecedent basis. Appropriate correction is required.
4. Claims 1-10, 13-15, 17 and 23-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2811

Claim 1, lines 3-4, the phrase "first, second and third conductive regions...forming emitter and collector regions" is unclear as to which conductive region(s) forming the emitter region and which conductive region(s) forming the collector region. It is also unclear whether the internal, intermediate and external conductive regions are related to the first, second and third conductive regions.

Claim 7, lines 1-2, the phrase "said internal, intermediate, external and connection metal regions" is unclear whether it is being referred to "said internal, intermediate and external metal regions". In addition, the phrase ""said internal, intermediate and external metal regions" has no antecedent basis.

Claim 13, lines 1-3, the phrase "the inner and outer conductive regions forming an first electrode of a transistor, the intermediate conductive region forming a second electrode of the transistor" is unclear as to how the conductive regions forming the electrodes of the transistor. It is believed that the inner and outer conductive regions forming a first region and a second region of a transistor and the intermediate conductive region forming a third region of the transistor.

Claim 14, lines 1-2, the phrase "the first electrode is the collector of the transistor, and the second electrode is the emitter of the transistor" is unclear as to how the first and second electrodes forming the collector and emitter regions of the transistor. It is believed that the semiconductor regions forming the collector and emitter regions of the transistor.

Claim 15, lines 2-7, the phrase "the outer conductive region is a first electrode of a first transistor; the intermediate conductive region is simultaneously a second electrode

Art Unit: 2811

of the first transistor and a first electrode of a second transistor; the inner conductive region is a second electrode of the second transistor" is unclear as to how the conductive regions forming the electrodes of the transistors. It is believed that "the outer conductive region is a first region of a first transistor; the intermediate conductive region is simultaneously a second region of the first transistor and a first region of a second transistor; the inner conductive region is a second region of the second transistor".

Claim 17, lines 1-2, the phrase "the first and third conductive regions are two different input terminals to two different transistors" is unclear as to how conductive regions form input terminals. It is believed that input terminals are formed on the conductive regions.

Claim 23, lines 4-5, the phrase "the first electrode being an outer and inner conductive regions of a second conductivity type" and lines 8-10, the phrase "the second electrode being an intermediate conductive region of the second conductivity type" are unclear as to how electrodes forming conductive regions of the second conductivity type". In addition, the written description describe the electrodes are made of metal. It is believed that the first region and a second region being an outer and inner conductive regions of a second conductivity type. It is also believed that a third region being an intermediate conductive region of the second conductivity type.

Claim 25, line 11, the phrase "a forth voltage potential" is unclear whether it is being referred to "a fourth voltage potential".

Art Unit: 2811

Since the base well [58] is shared by the first and second transistors and a first voltage has been applied to the base well, it is unclear why a fourth voltage being applied to the base well in claim 25.

Since the intermediate conductive region [61] is shared by the first and second transistors and a third voltage has been applied to the intermediate conductive region, it is unclear why a sixth voltage being applied to the intermediate conductive region in claim 25.

Claim 26, lines 1-4, the phrase "the first electrode of the first transistor is a collector, the second electrode of the first transistor is an emitter, the first electrode of the second transistor is a collector, and the second electrode of the second transistor is an emitter" is unclear as to how the electrodes forming the emitter and collector of the transistor. It is believed that "the first electrode of the first transistor is a collector electrode, the second electrode of the first transistor is an emitter electrode, the first electrode of the second transistor is a collector electrode, and the second electrode of the second transistor is an emitter electrode".

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 20 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Holland.

In regards to claim 20, Holland shows all the elements of the claimed invention in figs. 1 and 2. It discloses a process for fabricating a semiconductor device, comprising: forming a base well [84] with a first conductivity type (n-type); and forming outer, intermediate and inner conductive regions [100, 98, 96] with a second conductivity type (p-type) within the base well in a substantially concentric manner, the outer and intermediate conductive regions each being a substantially annular shape, and the inner conductive region being a substantially circular shape (annular shape).

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 11, 15, 16, 17, 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holland.

In regards to claim 22, Holland differs from the claimed invention by not showing independently connecting the inner and outer conductive regions to two separate metal regions.

Fig. 1 discloses the inner conductive region (emitter of Q2) is connected to a potential V+ and the outer conductive region (collector of Q3) is connected to a resistor R2. Therefore, the inner and outer conductive regions are independently connected to two different external leads. It would have been obvious for the two different external leads are two separate metal regions because metal is a conventional external lead material.

In regards to claim 11, Holland discloses a semiconductor device in figs. 1 and 2. It comprising: a base well [84] of a first conductivity type (n-type); an outer conductive region [100] of a second conductive type (p-type) formed within the base well, having a substantially annular shape, said outer conductive region being connected to a first lead (collector of Q3 is connected to the resistor R2 through a lead); an intermediate conductive region [98] of the second conductive type formed within the outer conductive region, extending therefrom at a first distance and having a substantially annular shape, said intermediate conductive region being connected to a second lead (collector of Q2 is connected to a diode D1 through a lead); and an inner conductive region [96] of the second conductive type formed within the intermediate conductive region [98], extending therefrom at a second distance, having a substantially circular shape, said inner conductive region being connected to a third lead (emitter of Q2 is connected to V+ through a lead).

Holland differs from the claimed invention by not showing the first, second and third leads are made of metal contacts.

It would have been obvious for the first, second and third leads are made of metal because metal is a conventional lead material.

In regards to claim 15, Holland further discloses the outer conductive region [100] is a first region of a first transistor [Q3]; the intermediate conductive region [98] is simultaneously a second region of the first transistor [Q3] and a first region of a second transistor [Q2]; the inner conductive region [96] is a second region of the second

Art Unit: 2811

transistor [Q2]; and the base well [84] is a common base for the first and second transistors [Q3, Q2].

In regards to claim 16, Holland discloses a semiconductor device in figs. 1 and 2. It comprising: a base well [84] of a first conductivity type (n-type); a first conductive region [100] of a second conductivity type (p-type) having a substantially annular shape and being connected to a first lead (collector of Q3 is connected to the resistor R2 through a lead), said first conductive region having an inner wall and outer wall; a second conductive region [98] of the second conductive type having a substantially annular shape and being connected to a second lead (collector of Q2 is connected to a diode D1 through a lead), said second conductive region being positioned at a first distance from the inner wall of the first conductive region; and a third conductive region [96] of the second conductive type having a substantially circular shape and being connected to a third lead (emitter of Q2 is connected to V+ through a lead), said third conductive region being positioned at a second distance, greater than the first distance, from the inner wall of the first conductive region.

Holland differs from the claimed invention by not showing the first, second and third leads are made of metal contacts.

It would have been obvious for the first, second and third leads are made of metal because metal is a conventional lead material.

In regards to claim 17, Holland further discloses the first and third conductive regions having two different input terminals to two different transistors (Q3, Q2).

In regards to claim 19, Holland discloses a semiconductor device. It comprising: a base well [84] of a first conductivity type (n-type); a first conductive region [100] of a second conductive type (p-type) formed within the base well, having a substantially annular shape, said first conductive region being connected to a first lead; a second conductive region [98] of the second conductive type formed adjacent to the first conductive region, spaced therefrom a first distance and having a substantially annular shape and being positioned on a first side of the first conductive region, said second conductive region being connected to a second lead; and a third conductive region [96] of the second conductive type formed adjacent to the second conductive region, spaced therefrom a second distance, having a substantially circular shape and being positioned on the first side of the first conductive region, said third conductive region being connected to a third lead.

Holland differs from the claimed invention by not showing the first, second and third leads are made of metal contacts.

It would have been obvious for the first, second and third leads are made of metal because metal is a conventional lead material.

9. Claims 12, 18 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: The first major difference in the claims not found in the prior art of record is a common metal contact region connecting the first and the third metal contacts. The

Art Unit: 2811

second major difference in the claims not found in the prior art of record is connecting the inner and outer conductive regions by a common metal contact.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Loke whose telephone number is (571) 272-1657. The examiner can normally be reached on 7:50 am to 5:20 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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January 10, 2005

Steven Loke  
Primary Examiner

